



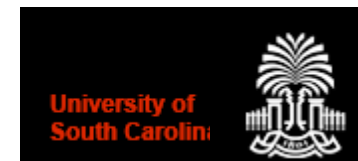
The CUAHSI Hydrologic Information System

Consortium of Universities for the
Advancement of Hydrologic Science, Inc.
(CUAHSI)

<http://www.cuahsi.org>

HIS Project Team

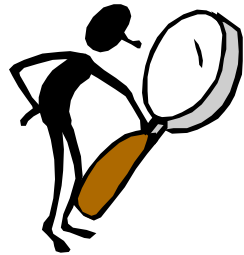
- **University of Texas at Austin** – David Maidment (PI), Tim Whiteaker
- **San Diego Supercomputer Center** – Ilya Zaslavsky, David Valentine, Tom Whitenack
- **Utah State University** – David Tarboton, Jeff Horsburgh
- **CCNY**– Michael Piasecki
- **University of South Carolina** – Jon Goodall, Tony Castronova
- **Idaho State University** – Dan Ames, Jiri Kadlec
- **Tufts University**—Alva Couch, Alex Bedig



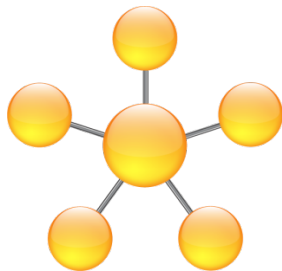
Outline



- The HIS Story



- HIS components



- Putting the pieces together

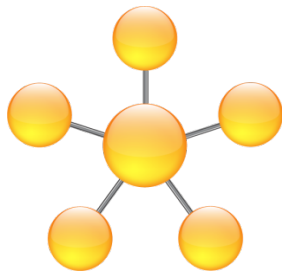
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HIS Connects People with Data

The CUAHSI Hydrologic Information System (HIS) provides web services, tools, standards and procedures that enhance access to more and better data for analysis.

<http://cuahsi.org/HIS.aspx>

What kind of data does HIS support?

- HIS is designed for *in situ* (e.g., sensor) data collected at *a fixed point*.
- Archetype: Stream flow at a gage on a river
- Sensor can measure any physical, chemical, or biological property
- Relaxing assumptions
 - Moving platform data can be represented (but not as efficiently as custom designed database)
 - Time series can be associated with polygon or arc in WaterML 2.0
 - “Simple” laboratory analyses (aquatic chemistry...)

We Collect Lots of Water Data

Water quantity



Rainfall



Soil water



Water quality



Meteorology



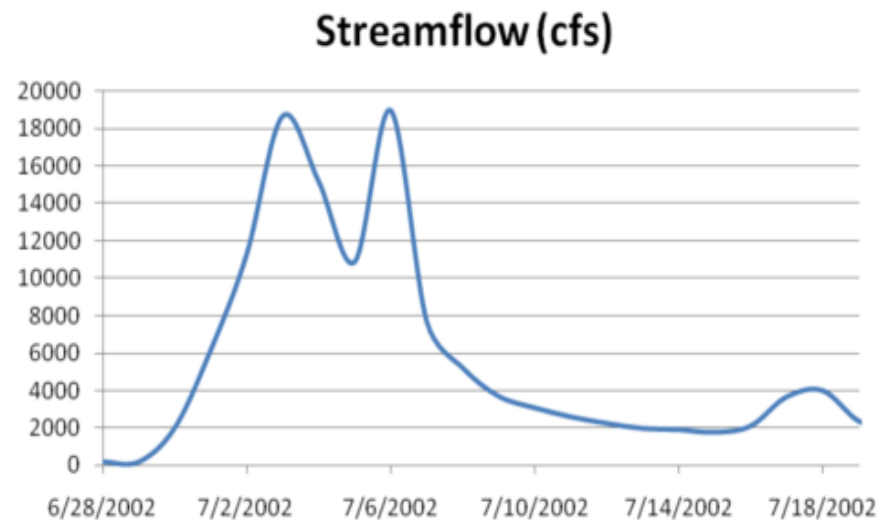
Groundwater



The Data Have a Similar Structure

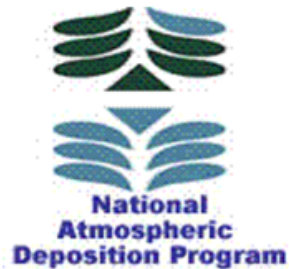


A **point** location in **space**

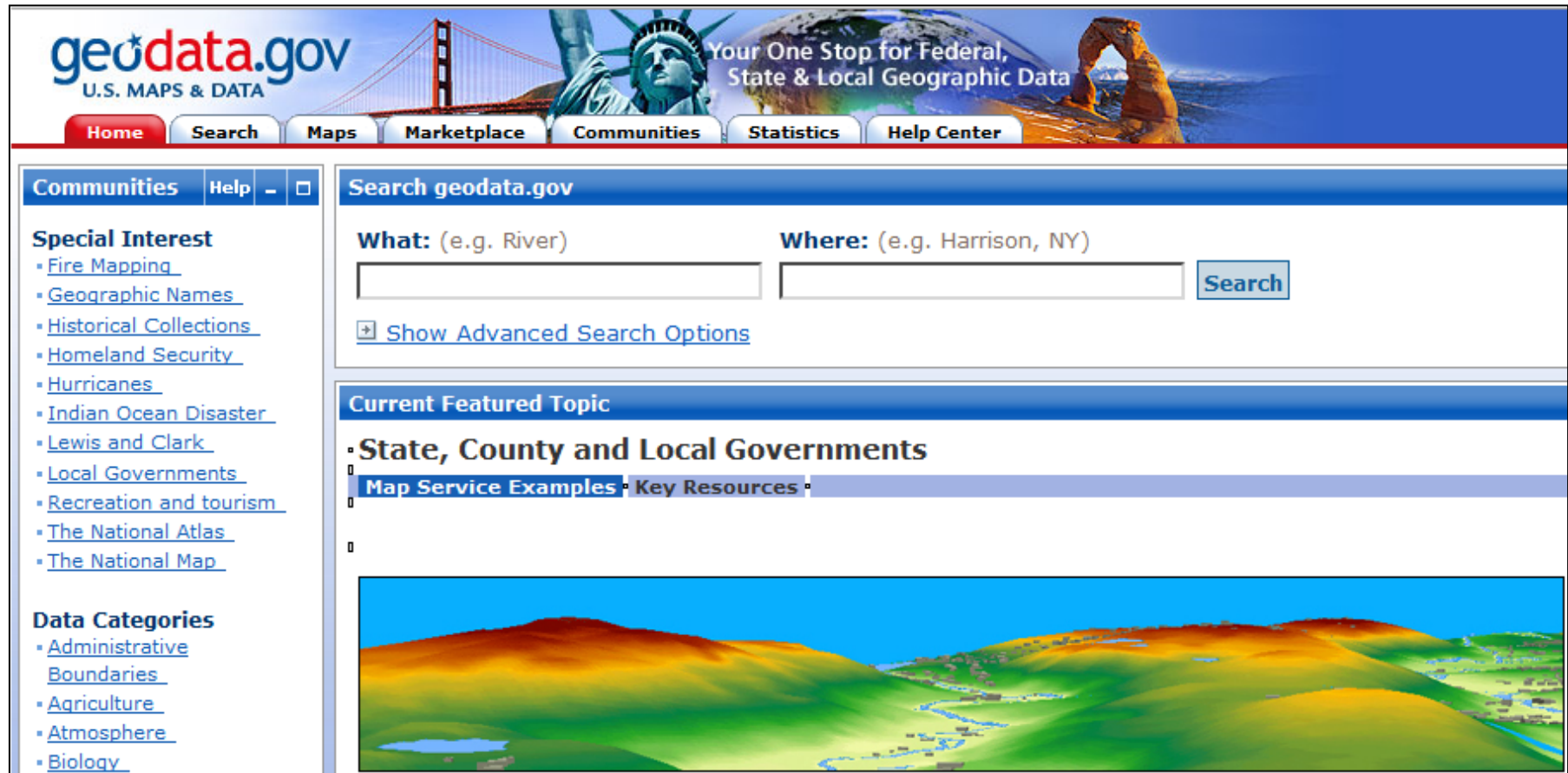


A **series** of values in **time**

Data Are Collected by Many Organizations

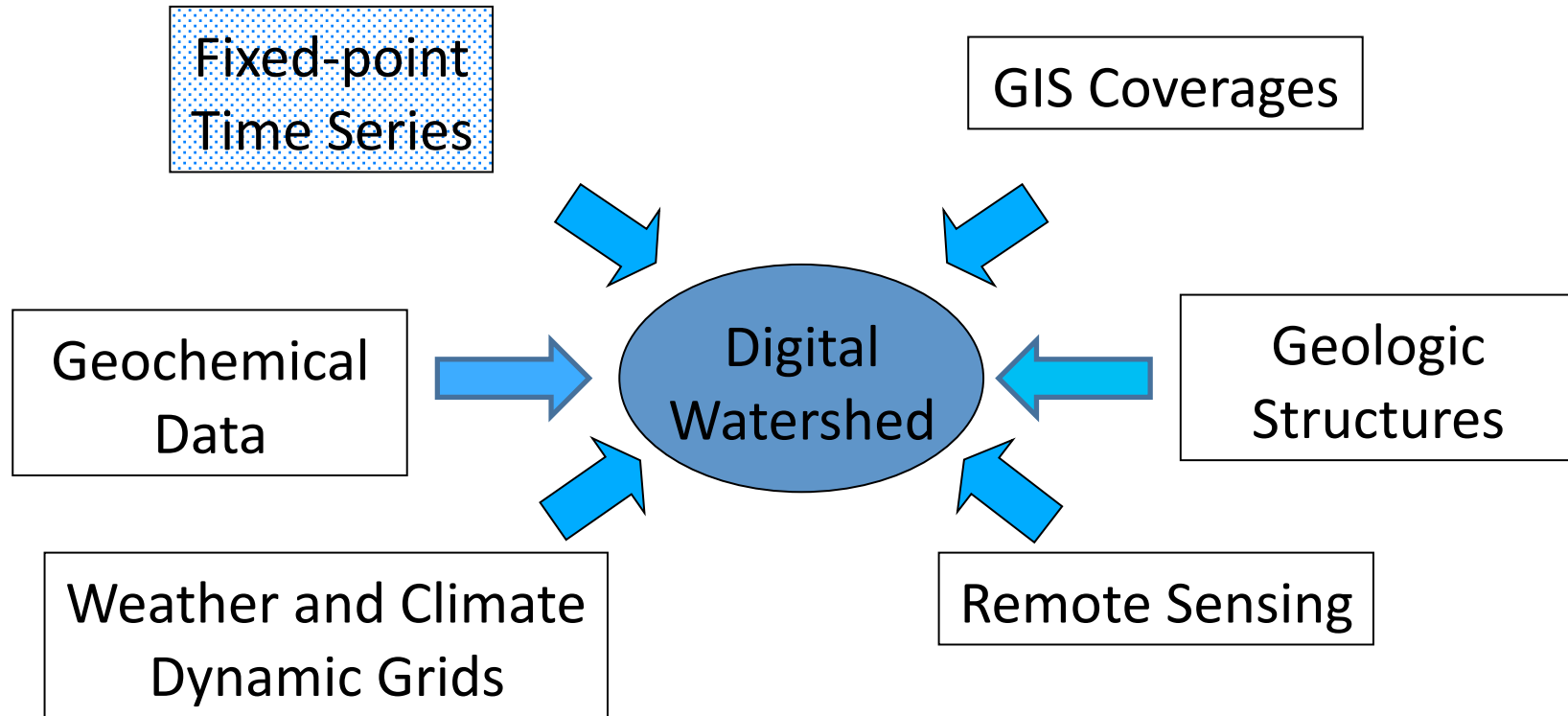


USA has GIS Data Repository



...but nothing equivalent for water data

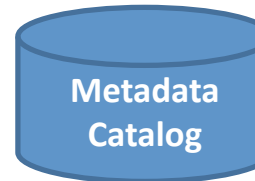
Data Integration



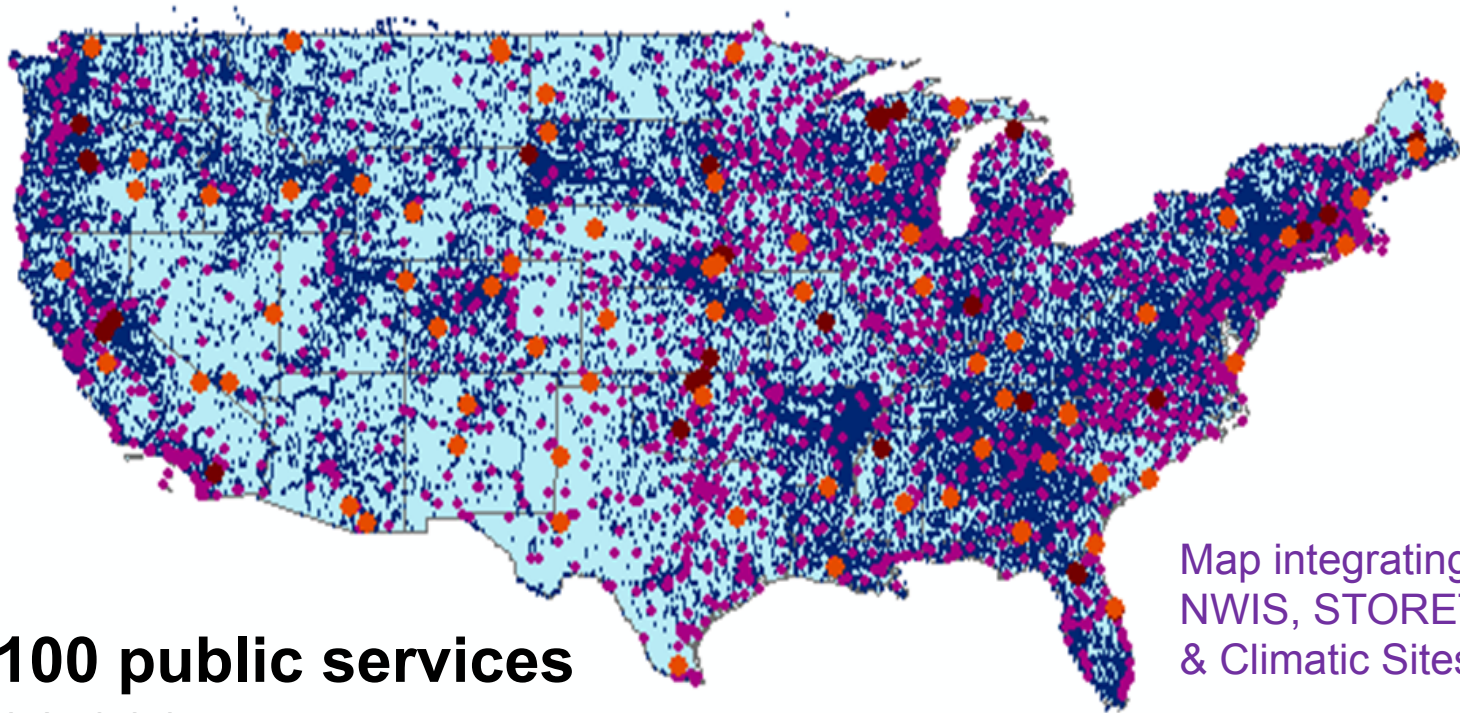
Currently, the focus is on data from monitoring sites at point locations.

The Result

- WaterML language for describing water data
- Global (?) catalog of water data sources
- Free software for data access



Metadata Catalog, October, 2012



Map integrating
NWIS, STORET,
& Climatic Sites

100 public services

32,000+ variables

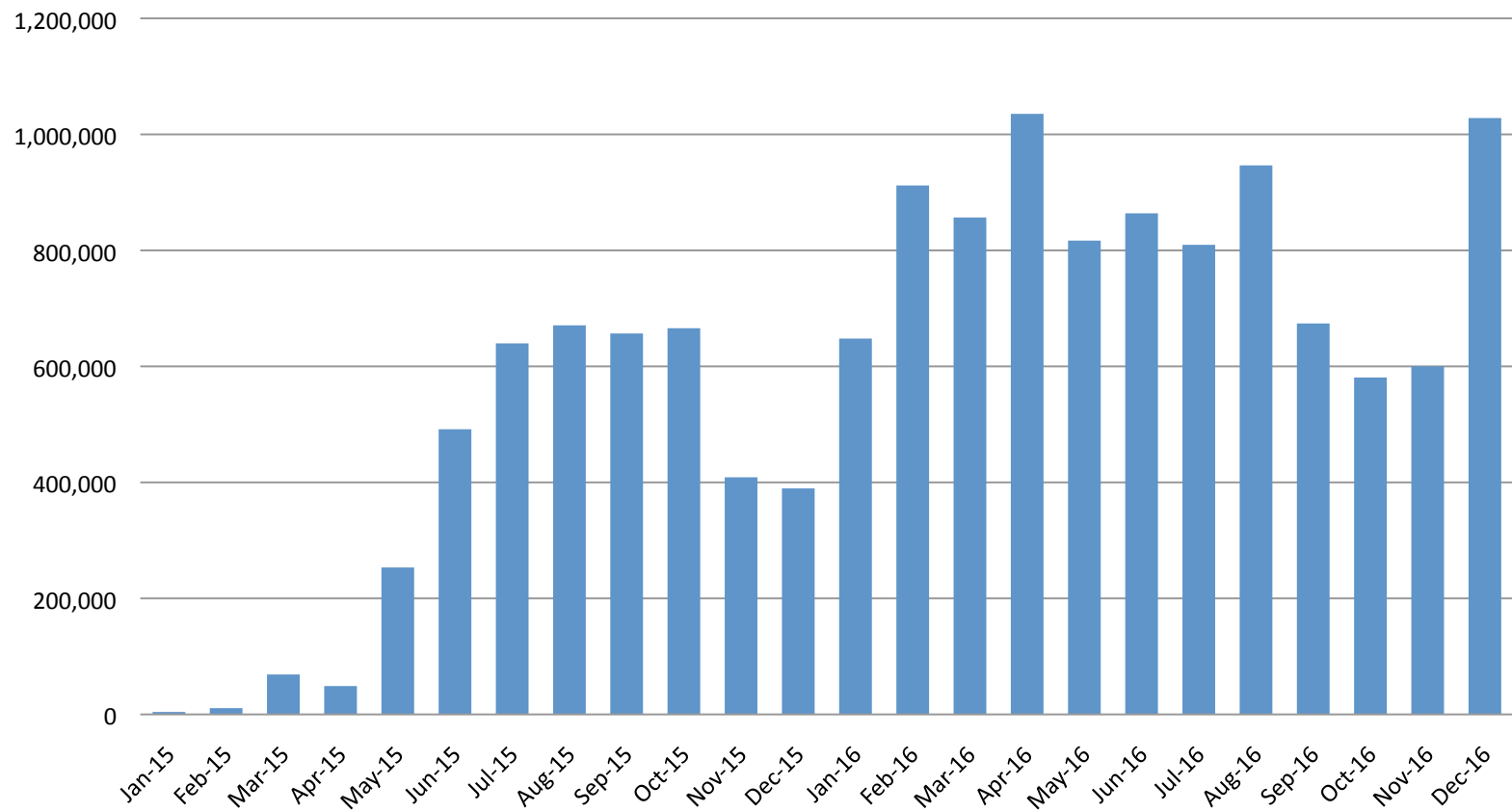
2.79 million sites

33.9 million series

Referencing 18+ billion data values

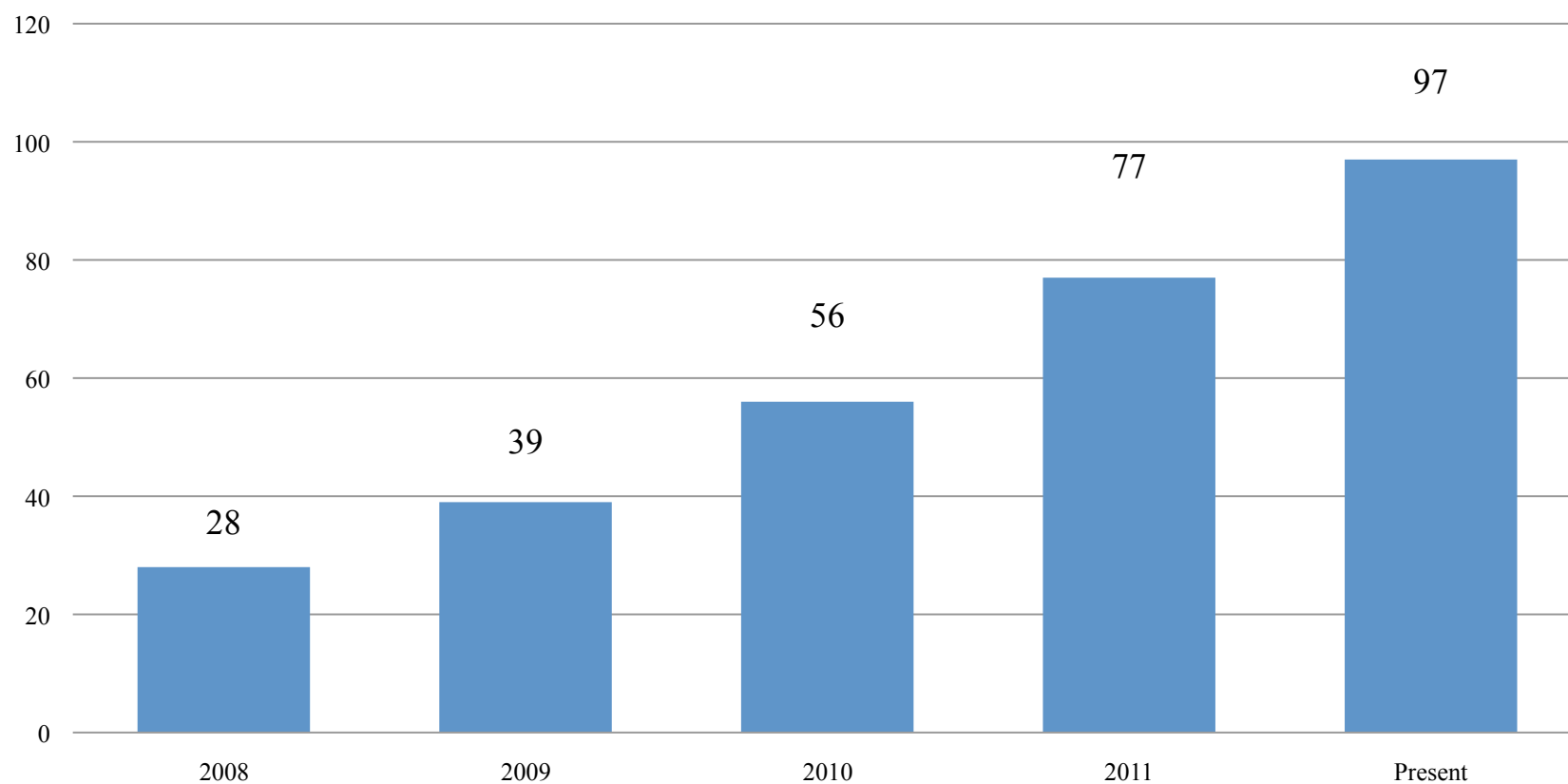
HIS Usage

Number of Time Series Downloaded



Registered Public Services

Data Sources Registered in HIS



For more on the HIS Story

<http://cuahsi.org/his.aspx>

CUAHSI HIS
Sharing hydrologic data

CUAHSI's Hydrologic Information System (CUAHSI-HIS) provides web services, tools, standards and procedures that enhance access to more and better data for hydrologic analysis.

Home | How To | Components | Community | Publications | About Us | Contact Us

Google Custom Search Search HIS

The CUAHSI Hydrologic Information System (HIS) is an internet-based system for sharing hydrologic data. It is comprised of databases and servers, connected through web services, to client applications, allowing for the publication, discovery and access of data.

Key Components of CUAHSI-HIS:

```
graph TD
    HS[HydroServer  
Data Publication] -- "Metadata Services  
Service Registration  
and Catalog Harvesting" --> HC[HIS Central  
Data Discovery]
    HC -- "Search Services  
Geographic, Semantic, Time  
and Network Search" --> HD[HydroDesktop  
and other clients  
Data Access]
    HS -- "Data Services  
Water and Spatial Data" --> HD
```

Quick Links

- HydroDesktop
- HydroExcel
- HydroGet
- FetchWaterML
- WaterML Web Services
- ODM Database
- HydroServer
- Master Controlled Vocabulary
- HydroTagger
- HIS Central

What's New

Hydrologic Data Needs Survey
Help us help you, by filling out our Hydrologic Data Publication, Discovery, Access and Analysis Needs Survey. This survey follows on to those conducted in 2004 and 2006. Results of these surveys have had a significant influence on the direction of this project.

Hope to see you at the Water Data Service Workshop, July 21-22, 2010
This workshop is an introduction to the CUAHSI HIS web service approach to sharing and accessing hydrologic data, including the key tools and technologies: HydroServer (store and publish), HIS Central (catalog and search), and HydroDesktop (access and analyze). The workshop follows the CUAHSI Biennial Colloquium in Boulder, CO.

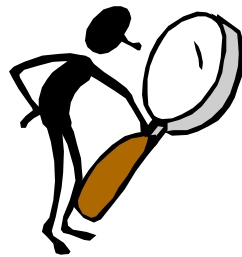
HIS at the AWRA Spring Specialty Conference: GIS & Water Resources VI
The keynote by ESRI's Jack Dangermond described how ESRI is integrating HIS technology into their new products. There was also a number of other HIS related presentations, and we had demos and more at the CUAHSI booth at the conference on, March 29-31, 2008, and the workshops that followed it on April 1-2, in Orlando, FL.

Done

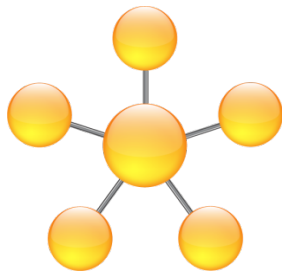
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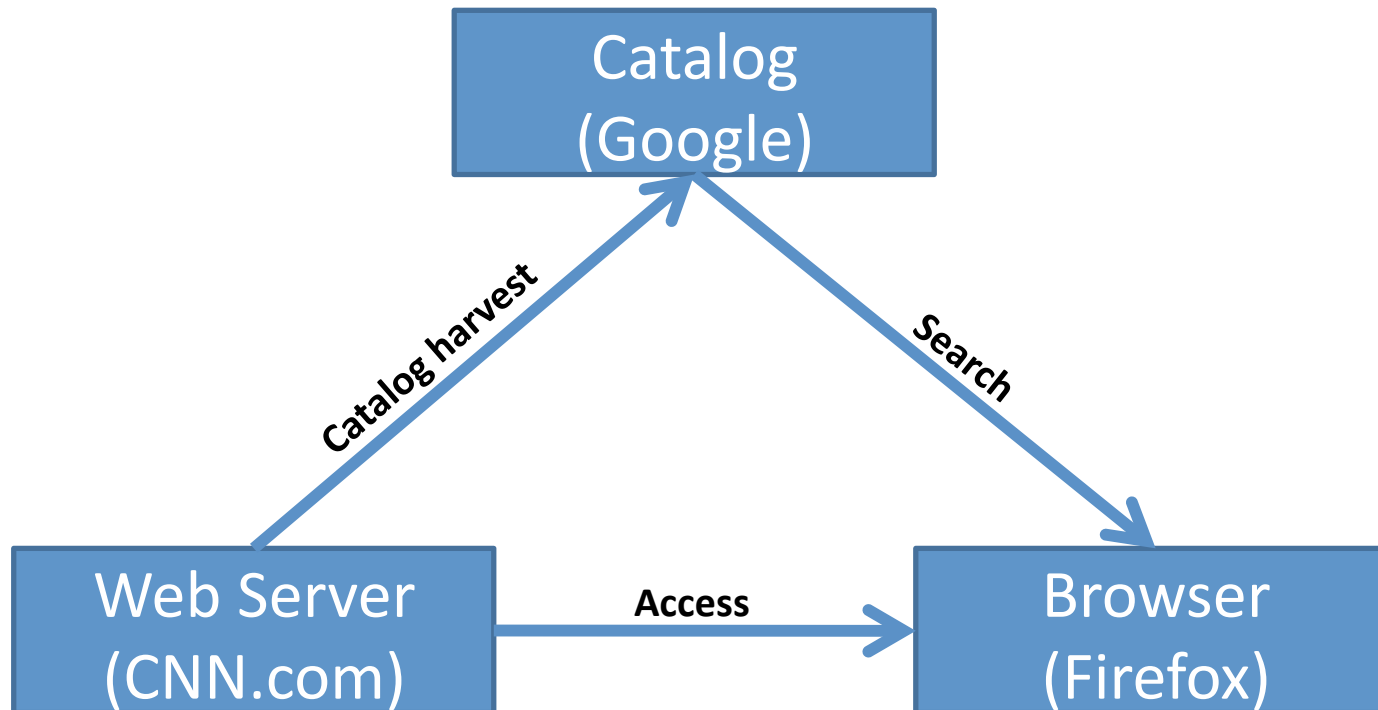


- *HIS components*

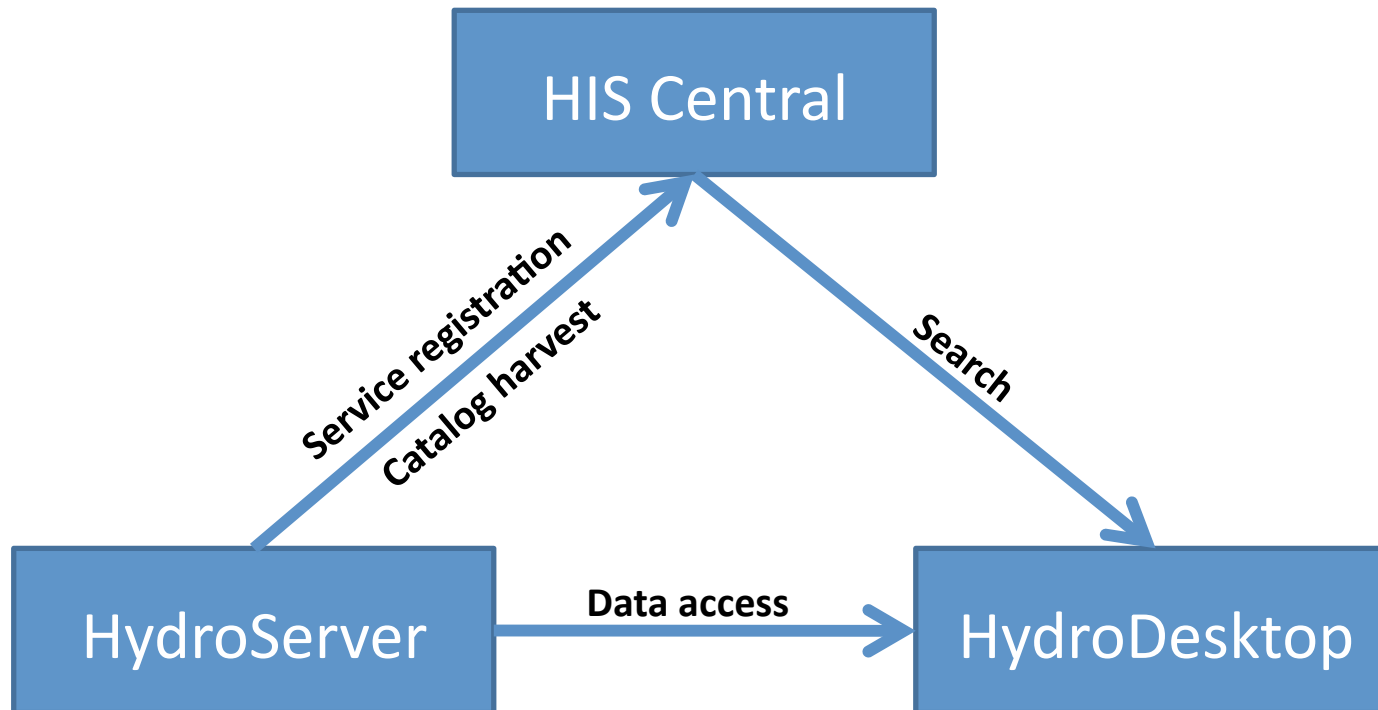


- Putting the pieces together

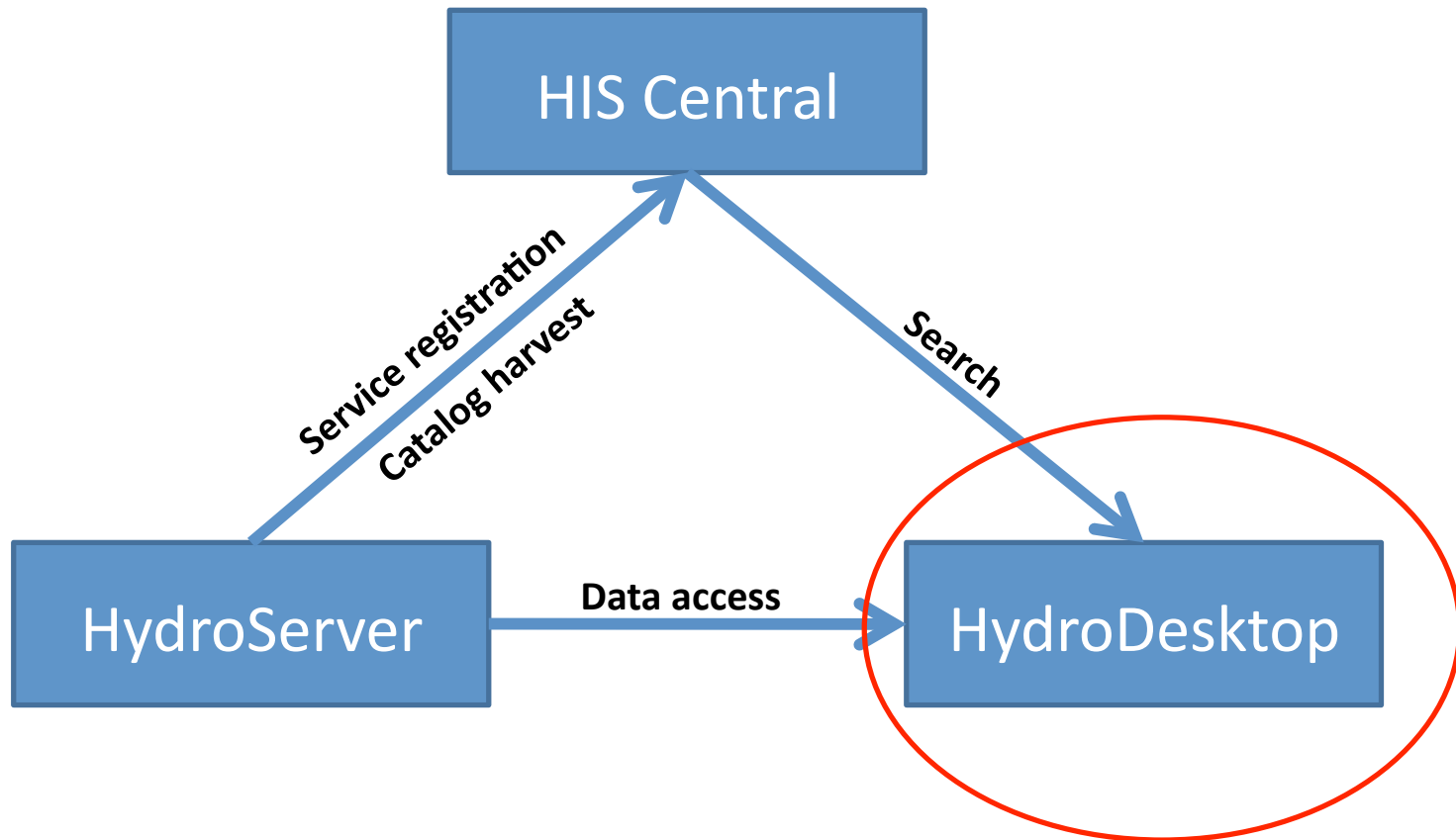
Web Paradigm



Services-Oriented Architecture for Water Data



Services-Oriented Architecture for Water Data



HydroDesktop

- Free, open source solution for HIS data access
- www.hydrodesktop.org



The screenshot shows the HydroDesktop project page on the CodePlex Open Source Community. The page features a header with the HydroDesktop logo (CUAHSI Open Source Hydrologic Data Tools) and a search bar. A navigation menu includes links for Home, Downloads, Documentation, Discussions, Issue Tracker, Source Code, People, and License. Below the menu, there are links for 'Create New Page', 'Edit', 'View All Comments', 'Print View', 'Page Info', and 'Change History (all pages)'. The main content area is titled 'Project Summary' and describes HydroDesktop as a free and open source desktop application developed in C# .NET that serves as a client for CUAHSI HIS WaterOneFlow web services data. It includes data discovery, download, visualization, editing, and integration with other analysis and modeling tools. A section titled 'Building the HydroDesktop Team' encourages interested parties to join the project. A sidebar on the right contains a 'Download' button, a table of project details (CURRENT, DATE, STATUS, RATING, MORE), an 'Activity' section with statistics (Page Views, Visits, Downloads, Application Runs), and a 'View Detailed Stats' button. The page also includes a 'Mark as a favorite project' link and a 'Search Wiki & Documentation' bar.

HydroDesktop
CUAHSI Open Source Hydrologic Data Tools

CodePlex Open Source Community

twitvine Sign Out CodePlex Home

Search all CodePlex projects Search

Home Downloads Documentation Discussions Issue Tracker Source Code People License RSS

Create New Page Edit View All Comments Print View Page Info Change History (all pages) Search Wiki & Documentation

Home

Getting HydroDesktop, Presentations and Publications, Version Features, Sample Data, Workshops and Training

Project Summary

HydroDesktop is a free and open source desktop application developed in C# .NET that serves as a client for CUAHSI HIS WaterOneFlow web services data and includes data discovery, download, visualization, editing, and integration with other analysis and modeling tools.

Building the HydroDesktop Team

This is an open project that is actively seeking partners to help with coding and testing. If you are interested in working with us on the project, please introduce yourself using the [Discussions](#) tab. Also, you may want to start by reading the HydroDesktop [Functional Specifications](#). Finally you may want to take a quick look at the [Presentations and Publications](#) that introduce and describe the project. We look forward to meeting you and working with you on this project!

- » Go to the Discussions Page <http://hydrodesktop.codeplex.com/Thread/List.aspx> to introduce yourself
- » Look at the [Database Structure](#) for HydroDesktop
- » Read the [Functional Specifications](#)
- » Look at the [Documentation](#) for HydroDesktop users and developers

Mark as a favorite project

Download

CURRENT	1.1 Beta RC6
DATE	Tue Aug 31 2010 at 7:00 AM
STATUS	Beta
RATING	No Ratings 412 downloads
MORE	View all downloads

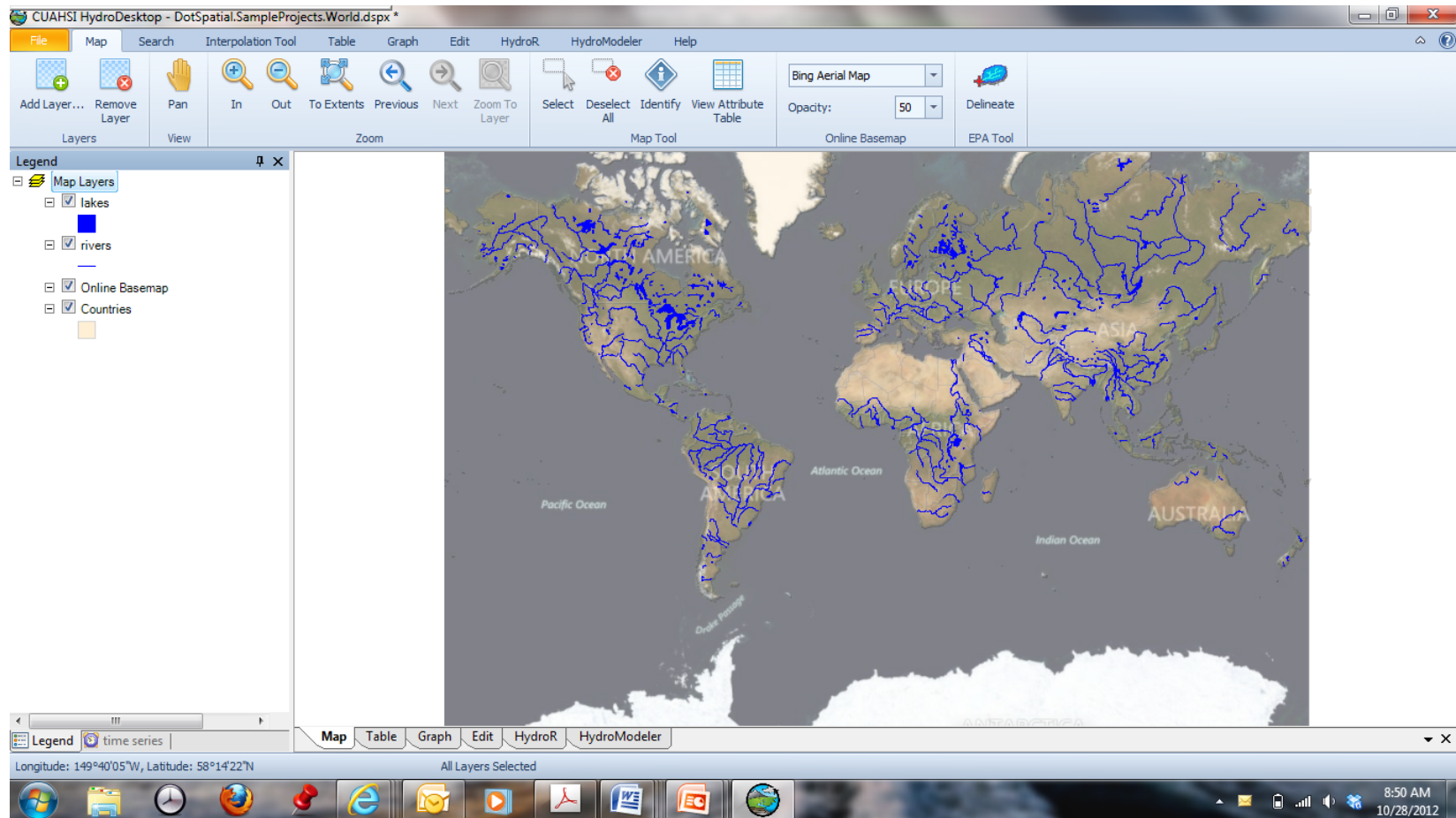
Activity 7 30 All days

Page Views	1556
Visits	284
Downloads	198
Application Runs	N/A

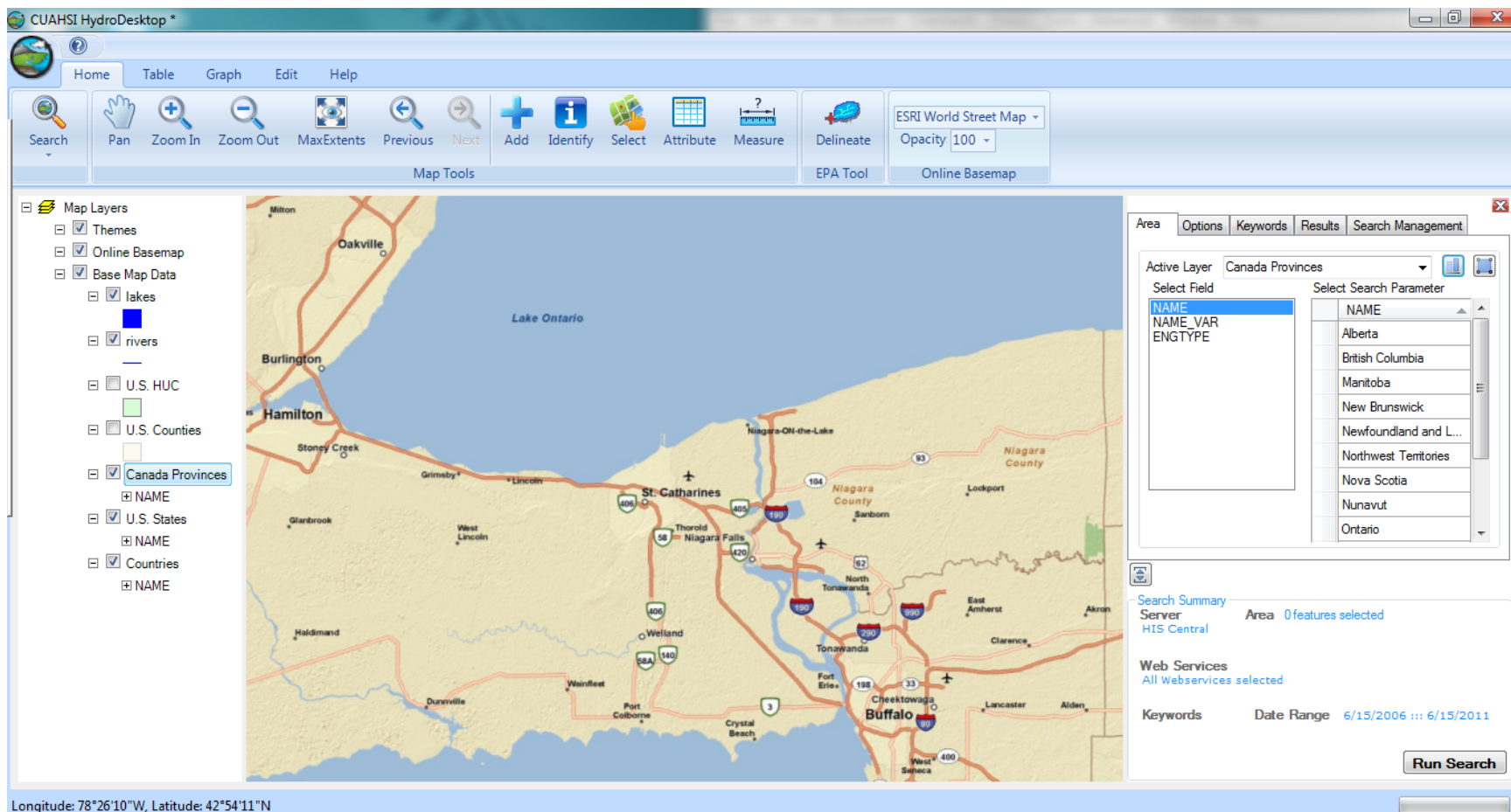
View Detailed Stats

Related Projects

HD-Opening Screen



Select Area of Interest



Select Constituents of Interest

CUAHSI HydroDesktop

Home Table Graph Edit Help

Search Pan Zoom In Zoom Out MaxExtents Previous Next Add Identify Select Attribute Measure Delineate EPA Tool ESRI World Imagery Opacity 100 Online Basemap

Map Layers

- Search Results
 - EPA
 - NPCA
 - NWISDV
 - NWISIID
 - NWISUV
- Themes
- Online Basemap
- Base Map Data
 - lakes
 - rivers
- U.S. HUC
- U.S. Counties
- Canada Provinces
 - NAME
- U.S. States
 - NAME
- Countries
 - NAME

Longitude: 78°34'27"W, Latitude: 43°10'51"N

Area Options Keywords Results Search Management

0 out of 438 series selected

DataSource	SiteName	VarName
NPCA	Virgil	Streamflow
NPCA	Decew	Streamflow

Save data to...
☒ New Theme ☐ Existing Theme

Theme Description

Reset Download Data

Search Summary

Server HIS Central Area Rectangle :: -79.569171 :: 42.835297 :: -78.523153 :: 43.256908

Web Services All Webservices selected

Keywords Date Range 6/15/2006 :: 6/15/2011
Discharge, stream :: Coliform, fecal ::
Nutrient :: Atrazine

Run Search